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SCIENCE

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COMPOSITE PORTRAITS OF WASHINGTON.

THE statement that one of the chief applications of composite photography will be in the direction of producing more reliable portraits of representative men by combining the testimonials of individual artists, will probably be accepted by all who have followed the short but interesting career of this new invention. The suggestion that by combining the individual conceptions of several artists, one would obtain a more reliable portrait than any of the components, was near at hand. The first such application was made by Mr. Francis Galton, who made a composite of six medallion heads of Alexander the Great, and naturally claimed for the composite the combined authority of all the artists; for it is evident, that, while each artist will very likely express the general features of his subject, some peculiar idiosyncrasies of his own are apt to creep in. The composite sifts out all these common traits, and presents them strong and clear, while it reduces each artist's peculiarity to a scarcely perceptible shadow.

In this way we have recently come into possession of a new Shakspeare, for which we have to thank Mr. Walter Rogers Furness. In the case of Shakspeare the diversity amongst the several originals is strikingly evident, and thus a composite was needed to give a characteristic individual, natural face. This suggested to Mr. W. C. Taylor the application of the same process to Washington's portraits. He has grouped the several portraits into three groups, owing to the differences of position of the portraits; and the accuracy of the work is well shown by the fact that the agreement amongst the resulting three composites is very close, while the originals show every shade of individual differences. These portraits were first published in the *Journal of the Franklin Institute*, and are given on a new and enlarged plate in this number. The lower right-hand composite has seemed to many the happiest result, and seems likely to serve as the model for future portraits of Washington.

THE *Paper Makers' Circular* (England) says that the new epoch on which we are entering will surely be known as "the age of pulp." Beyond esparto grass, straw, and wood, few fibrous substances have as yet practically taken the place once occupied exclusively by rags; but, if we should ever exhaust the sources from which we now obtain our supplies, there will assuredly be no lack of substitutes. East Indian ramie, pine-apple fibres, bamboo, bagasse (the refuse matter from sugar-canes), peat, bracken or common fern, flags, rushes, seaweed, tan, and hop-stalks, have all been proved capable of yielding pulp. In Scotland hollyhock-stems have been made into paper; in Ireland the mallow, red clover, hop-vine, and yellow water-iris have been put to the same use; in Demerara good paper has been made from the plantain; in France a patent has been granted for making paper out of leaves, which have been reduced to pulp.